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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/531,835

10/12/2005

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7590 02/21/2008  
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EXAMINER

ZHU, WEIPING

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

02/21/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/531,835	<b>Applicant(s)</b> COOPER ET AL.	
	<b>Examiner</b> WEIPING ZHU	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 8-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/21/2005</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Restriction is required under 35 U.S.C. 121 and 372.

The application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted

I. Claims 1-7, drawn to a method of treating a spent potliner after use in an aluminum smelting process.

II. Claim 8, drawn to a plant for processing spent potliners.

III. Claims 9 and 10, drawn to mineral products.

The inventions listed as I-II-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the common technical feature in all groups is the method of treating the spent potliner. This element cannot be a special technical feature under PCT Rules 13.2 because the element is shown in the prior art. Snodgrass et al. (US 4,444,740) discloses a method of treating a spent potliner (abstract), which is substantially identical to the claimed method of treating the spent potliner. Inventions I-II-III lack the same or corresponding special technical features. Therefore unity of invention is lacking and restriction is appropriate.

During telephone conversations with Mr. Joel E. Bair on January 14, 2008 and February 11, 2008, a provisional election was made with traverse to prosecute the

invention of I, claims 1-7. Affirmation of this election must be made by the applicant in replying to this Office action. Claims 8-10 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

Should the applicant traverse on the ground that the inventions are not patentably distinct, the applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103 (a) of the other invention.

The applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gamson et al. (US 4,355,017) in view of Snodgrass et al. (US 4,444,740).

With respect to claim 1, Gamson et al. ('017) discloses a method of treating a spent potliner after use in an aluminum smelting process comprising (col. 2, lines 10-47): crushing and classifying the spent potliner; placing the crushed and classified spent potliner in a furnace at a temperature greater than 450°C; heating the spent potliner to a temperature greater than 450°C; and mixing the heated spent potliner with water to produce reaction gases and residue.

Gamson et al. ('017) does not disclose burning the reaction gases as claimed. However, it has been well held where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical process, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977), MPEP 2112.01 [R-3] I. In the instant case, the claimed and Gamson et al. ('017)'s spent potliner residues are identical or substantially identical in structure or composition and are produced by identical or substantially identical processes. A prima facie case of obviousness is established. Burning of the reaction gases would be expected in the reaction of Gamson et al. ('017) as in the claimed reaction.

Gamson et al. ('017) does not disclose mixing the residue with water as claimed. Snodgrass et al. ('740) discloses that the ash residue was mixed with water (col. 3, lines 28-52 and Figure 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to mix the ash residue of Gamson et al. ('017) with water as disclosed by Snodgrass et al. ('740) in order to leach the ash residue and remove any residual fluoride from the ash residue as disclosed by Snodgrass et al. ('740) (col. 3, lines 28-52 and Figure 1).

With respect to claim 2, Snodgrass et al. ('740) discloses blending the treated ash residue with other chemicals and minerals to provide mineral products (col. 2, lines 35-58 and Figure 1).

With claims 3 and 4, they are apparatus limitations in a method claim. Gamson et al. ('017) discloses that the reaction may be conducted in suitable reactors such as a multiple stage fluidized bed, a multi-level furnace reactor, or a closed, refractory lined, furnace (col. 2, lines 20-22), which reads on the claim limitations.

With respect to claim 5, Gamson et al. ('017) discloses the method comprises directing air flow into the furnace (col. 4, lines 47-60).

With respect to claims 6 and 7, Snodgrass et al. ('740) discloses exposing the mixture of the ash residue and water to ambient conditions between 20°C and 120°C for a period of from about 10 minutes to 3 hours (col. 3, lines 28-43). The lowest temperature of Snodgrass et al. ('740) is the same as the highest temperature as claimed in the instant claim 6 and the exposing time period of Snodgrass et al. ('740) is within the time range as claimed in the instant claim 7. A prima facie case of

obviousness exists. See MPEP 2144.05 I. Furthermore, it is well held that discovering an optimum value of a result-effective variable involves only routine skill in the art. In re Boesch, 617, F.2d 272, 205 USPQ 215 (CCPA 1980). In the instant case, the temperature and the exposing time period are result-effective variables, because they would directly affect the final results of the process as disclosed by Snodgrass et al. ('740) (col. 3, lines 28-43). See MPEP 2144.05 II. It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the temperature and the exposing time period of Snodgrass et al. ('740) in order to achieve desired results. Snodgrass et al. ('740) does not disclose exposing the mixture in a pile in a ventilated location as claimed in the instant claim 6 and mixing the pile on a daily basis as claimed in the instant claim 6. However, it would have been obvious to one of ordinary skill in the art that these measures would have been taken in the process of Snodgrass et al. ('740) as desired, because these measures would obviously help improve the efficiency of the process.

### ***Conclusion***

3. This Office action is made non-final. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Weiping Zhu whose telephone number is 571-272-6725. The examiner can normally be reached on 8:30-16:30 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1793

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/

Supervisory Patent Examiner, Art  
Unit 1793

WZ

2/11/2008